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(20426) Roll No.

B.Sc.(Bio-Tech.) - II yr.

# 3466

## B.Sc. (Biotechnology)

## Examination, April-2026

### MOLECULAR BIOLOGY

**(B-203)**

*Time : Three Hours ]* *[Maximum Marks : 50*

**Note :** Attempt any **five** questions. **All** questions carry equal marks. Draw diagrams wherever necessary.

1. Differentiate prokaryotic and eukaryotic replication. Explain following stages of prokaryotic replication; initiation and elongation with suitable diagrams.

**P.T.O.**

2. What are the structural genes regulated by Lac operon? Explain both negative and positive regulation of the lac operon.

3. Write short notes on:

   (i) C-value paradox

   (ii) P-element in Drosophila

   (iii) Semi-conservative replication

   (iv) Nucleosome.

4. Write a detailed note on molecular mechanism of DNA recombination in prokaryotes.

5. How does RNA processing, transport and protein degradation, function as a control of gene expression in eukaryotes. Explain in detail.

6. Explain the function of different RNA polymerases in eukaryotes. Describe the stages of transcription in eukaryotes by RNA polymerase II.

7. What is a genetic code? Describe the key properties of Genetic code. What is Wobble hypothesis? How does Wobble pairing contribute to degeneracy of genetic code.

8. Explain the initiation, elongation and termination phases of protein synthesis/ translation in eukaryotes.

9. What are the different types of DNA repair systems? Describe any two of them with suitable diagrams.

10. Write short notes on:

(i) B-DNA

(ii) Split genes

(iii) Insertion elements

(iv) Pribnow box

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